

*Amendments to the Claims*

The listing of claims will replace all prior versions, and listings of claims in the application.

1. (Currently Amended) An amplification system for a radio transmitter comprising:

a processing subsystem which determines envelope information and phase information from a baseband input signal,

a phase modulator which generates a substantially constant amplitude signal having phase determined by the phase information,

an envelope modulator which generates an amplitude modulation signal determined by the envelope information, and

an amplifier which generates an output signal from the constant amplitude signal, and the amplitude modulation signal,

wherein the phase modulator includes a phase-lock-loop ~~or a quadrature modulator~~, and the phase-lock-loop includes a frequency divider which is modulated according to the phase information.

2. (Original) A system according to claim 1 wherein:

the envelope modulator includes a pulse width modulator or a sigma delta modulator.

3. (Original) A system according to claim 1 wherein:

the frequency divider is modulated by a sigma-delta modulator which is controlled by the processing subsystem.

4. (Currently Amended) A system according to claim 1 wherein:  
the processing subsystem modifies the envelope information according to Cartesian feedback from the output signal ~~from~~ [of] the amplifier.

5. (Currently Amended) A system according to claim 1 wherein:  
the processing subsystem modifies the phase information according to Cartesian feedback from the output signal ~~from~~ [of] the amplifier.

6. (Original) A system according to claim 1 wherein:  
the processing subsystem predistorts the phase modulation of the output signal according to the envelope information and feedback from the output signal.

7. (Original) A system according to claim 1 wherein:  
the processing subsystem predistorts the phase modulation of the output signal by modifying the phase information.

8. (Original) A system according to claim 1 wherein:  
the amplifier is part of the phase modulator.

9. (Previously Presented) An amplification system for a radio transmitter comprising:

a digital processing subsystem which determines envelope information and phase information from a baseband input signal;

a phase modulator which generates a substantially constant amplitude radio frequency (RF) signal having phase determined by the phase information;

an envelope modulator which generates an amplitude modulation signal determined by the envelope information;

an amplifier which generates an RF output signal from the constant amplitude signal and the amplitude modulation signal; and

a Cartesian feedback path from the output of the amplifier to the digital processing subsystem.

10. (Previously Presented) A system according to claim 9, wherein:

the digital processing subsystem varies at least one of the phase information and the envelope information according to the Cartesian feedback.

11. (Previously Presented) A system according to claim 9, wherein:

the digital processing subsystem predistorts at least one of phase modulation and envelope modulation of the output signal according to the Cartesian feedback.

12. (Previously Presented) An amplification system for a radio transmitter comprising:

a digital processing subsystem which determines envelope information and phase information from a baseband input signal;

a phase modulator which generates a substantially constant amplitude radio frequency (RF) signal having phase determined by the phase information;

an envelope modulator which generates an amplitude modulation signal determined by the envelope information;

an amplifier which generates an RF output signal from the constant amplitude signal and the amplitude modulation signal; and

a predistorter in the digital processing system that distorts at least one of the phase information and the envelope information according to feedback from the output of the amplifier.

13. (Previously Presented) A system according to claim 12, wherein:  
the predistorter is coupled to the phase modulator and/or the envelope modulator.
14. (Previously Presented) A system according to claim 12, wherein:  
the feedback includes inphase and quadrature components derived from the output of the amplifier.